

Original Research Article

In the Crossroads of Health and Awareness: Medical Students' Take on HPV Vaccination

Shivali Rai, Shameemunisha M, S T Balamurali,

Department of Pharmacology, Madha Medical College and Research Institute, Kovur, Chennai

*Correspondence: Dr Shivali Rai (drshivalirai@gmail.com)

ABSTRACT

Background: Ranked as the fourth most prevalent cancer among women globally, cervical cancer presents a significant concentration of 90% of cases in low- and middle-income countries. The potential for preventing cervical cancer through vaccination is substantial. However, the implementation of the human papillomavirus (HPV) vaccine encounters challenges, including acceptance barriers, lack of awareness, and high vaccine costs. Overcoming these obstacles is crucial, especially in regions like India, where cervical cancer screening is a significant concern. The objective is to assess the comprehension, viewpoints, and utilization of the HPV vaccine among medical students enrolled in a medical college.

Material and Methods: A descriptive cross-sectional study was conducted among 384 study subjects using a pre-tested, semi-structured questionnaire.

Results: Perspectives on HPV vaccine administration ranged, with 55% advocating its use in the 10-30 age range. Opinions diverged on vaccine eligibility for boys, administration to sexually active girls, and the necessity of HPV screening before vaccination. Concerns about vaccine safety, administration to HPV-infected women, and cervical cancer screening post-vaccination exhibited considerable diversity.

Conclusion: Provides critical insights into medical students' attitudes and awareness regarding HPV and vaccine, highlighting the significance of tailored health education initiatives to address knowledge gaps and misconceptions. Recognizing these diverse perspectives can guide the development of targeted strategies to enhance public acceptance and utilization of the HPV vaccine. This research contributes to shaping informed decision-making among future healthcare professionals, laying the groundwork for improved public health outcomes.

Keywords: Human Papilloma Virus (HPV) Vaccination, Cervical Cancer, Public Health

INTRODUCTION

Internationally, cervical cancer ranks as the fourth most prevalent cancer among women, recording 604,127 new cases in the year 2020. A significant majority, approximately 90%, of the 341,831 cervical cancer-related deaths took place in nations classified as low- and middle-income.^{1,2}

Cervical cancer ranks as the second most prevalent cancer among women in India, posing a significant threat to the approximately 511.4 million women aged 15 and above. Current statistics indicate an annual diagnosis of around 123,907 new cases and 77,348 deaths in the country, contributing to roughly one-third of global cervical cancer mortality. The

nation has implemented various research programs focused on cervical cancer, with the national cancer registry program, established by the Indian Council of Medical Research, serving as a vital surveillance system for cancer across the country.³

Human papillomavirus (HPV) is a commonly transmitted sexually infection that affects the skin, genital area, and throat. Almost everyone who is sexually active will contract this infection at some point, often without any apparent symptoms. In most instances, the immune system effectively clears the body of HPV. However, if a persistent infection with high-risk HPV occurs, it can result in the formation of abnormal cells, potentially leading to the development of cancer.⁴

The prevalence of human papillomavirus (HPV) is increasing in male populations, particularly in high-income countries, contributing to a growing disease burden.⁵ HPV is a significant factor in cervical cancer, with 12 identified oncogenic types (16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, and 59). Notably, HPV types 16 and 18 are accountable for approximately 70% of all global cervical cancer cases and 83.2% cases in India are considered highly oncogenic.^{3, 4} Additionally, these types are associated with nearly all squamous cell carcinomas of the anus, as well as cancers affecting the vagina (78%), vulva (15–48%, depending on age), oropharynx (13–60%, depending on region), and penis (53%).⁶

As of 2021, three types of HPV vaccines are available, including Gardasil, Gardasil 9, and Cervarix.⁷ In a recent development, India officially launched its first Human Papillomavirus vaccine on September 1, 2022. This vaccine was collaboratively developed by the Serum Institute of India and the Indian Government's Department of Biotechnology. Following encouraging results from a comprehensive phase 2/3 clinical trial, the Drugs Controller General of India granted marketing authorization on July 12, 2022, for individuals aged 9-26 years, encompassing both females and males.⁸ The present study is contextualized within this evolving landscape.

MATERIAL AND METHODS

Aim and Objectives:

To assess the comprehension, viewpoints, and utilization of the HPV vaccine among medical students enrolled in a medical college.

Study Design and Participants:

This descriptive cross-sectional study was carried out over a 4-month period among medical college students.

Sample Size:

The study included a sample of 384 students and a convenient sampling method was employed.

Inclusion and Exclusion criteria:

All medical students who gave consent to the study were included in the study. Students who were not willing to participate in the study and who were absent were excluded from the study.

Procedure for Data Collection:

For the purpose of the study, the semi-structured questionnaire was sent as a Google Form, and the responses were obtained. Later, a session was taken on the HPV vaccine, causative factors, and vaccine usage for the students included in the study.

Statistics Data was entered into a Microsoft Excel sheet and analysed. The results were expressed in descriptive statistics like proportions and percentages.

RESULTS

The research included 384 participants who met defined criteria for inclusion and exclusion. Analysis of demographic features revealed that the group consisted of medical students aged 18 to 24 years. Of these individuals, 116 (66.6%) identified as male,

256 (30.2%) as female, and 12 (3%) opted not to disclose their gender.

Out of the 384 students interviewed, 88 (23%) are confident that all cancers can be prevented, while 252 (66%) hold the belief that not all cancers are preventable. Moreover, 44 (11%) students are uncertain about the preventability of cancers. Exploring awareness of cervical cancer prevention, 72% of the participants are convinced that cervical cancer can be prevented, 21% believe it cannot be prevented, and 7% remain uncertain about its preventability.

In the survey of 384 students (Figure 1), 64 students (17%) link the cause of cervical cancer to bacteria, while 248 students attribute it to a virus. Furthermore, 16 students (4%) connect cervical cancer with fungi, and 56 students (15%) assert that it is caused by none of the options presented.

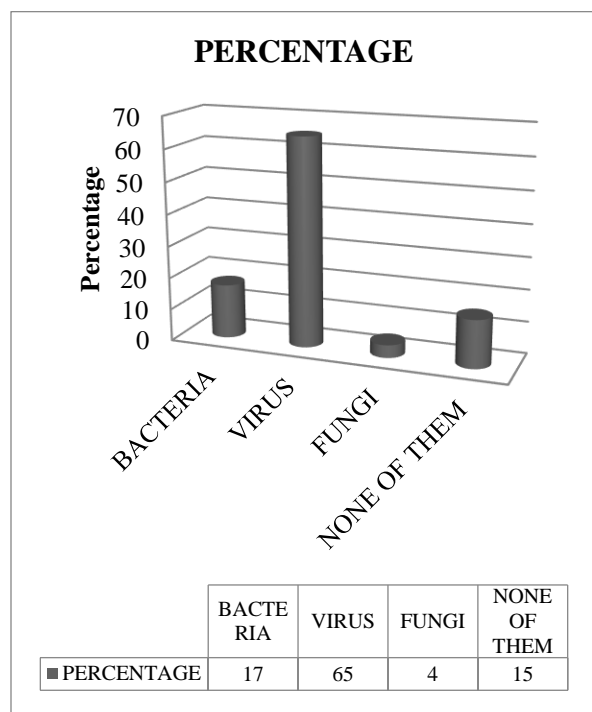


Figure 1: Participants' views on the causes of Cervical cancer

Within the cohort of 384 students (Figure 2), 72 students (19%) endorse the administration of the

HPV vaccine for individuals between the ages of 1 to 10 years, while 224 students (55%) advocate for its application in the 10-30 year age range. Furthermore, 84 students (22%) hold the perspective that the vaccine is appropriate for those aged 30-50 years, and a small minority of 4 individuals (1%) propose its use in individuals aged over 50 years.

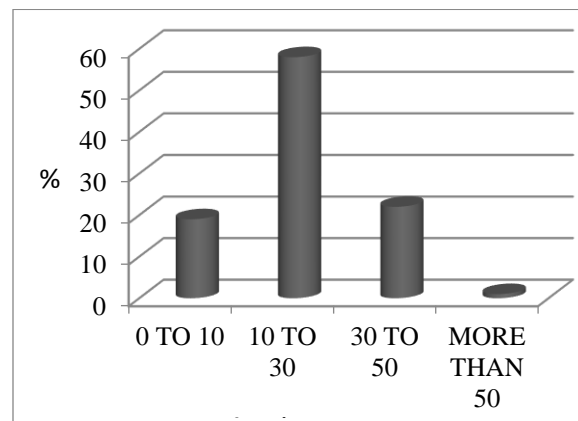


Figure 2: Percentage of participants advocating HPV vaccine administration by age group

Among the 384 participants, the majority, comprising 264 individuals (69%), believe that an HPV vaccine is available in India. Conversely, 56 participants (14%) hold the belief that it is not available, and 64 participants (17%) are uncertain about its availability. Regarding the eligibility of boys for the vaccine, 96 respondents (25%) affirm its suitability, while 184 respondents (48%) disagree, and 104 respondents (27%) express uncertainty.

In the context of administering the vaccine to sexually active girls, 273 respondents (71%) approve, 40 respondents (10%) disapprove, and 72 respondents (19%) are undecided. Responding to the question of whether girls/women should undergo HPV screening before vaccination, 200 respondents (52%) agree, 124 respondents (32%) disagree, and 60 respondents (16%) are unsure.

Concerning the administration of the vaccine to women already infected with HPV, 120 respondents (31%) endorse it, 160 respondents (42%) oppose it, and 104 respondents (27%) are unsure. Regarding the

safety of having multiple sexual partners after completing the HPV vaccine course, 104 respondents (27%) believe it is safe, 200 respondents (52%) think it is not safe, and 80 respondents (21%) are uncertain.

In terms of the necessity for cervical cancer screening among girls/women who have already been vaccinated, 256 respondents (67%) assert its importance, 68 respondents (18%) disagree, and 60 respondents (16%) express uncertainty.

Among the 384 individuals included in the study (Figure 3), 10% support a single-dose vaccination approach, while 20% contend that a two-dose vaccination is necessary. Furthermore, 30% of the participants assert the importance of a three-dose vaccination regimen, and 40% hold the opinion that four doses of vaccination are required.

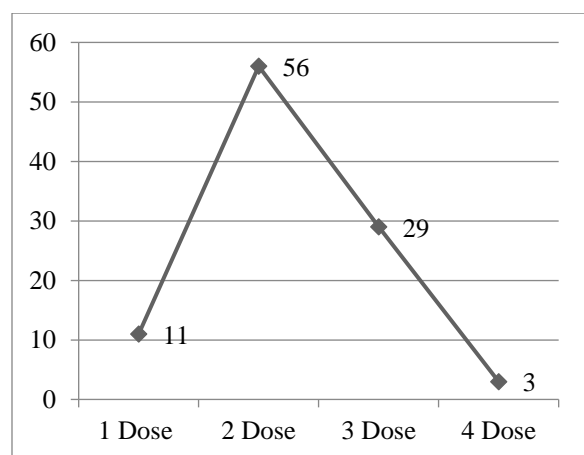


Figure 3: Preferred number of doses for HPV vaccine for optimal protection

Within the entire participant pool, constituting 100% (Figure 4), 1% of the population contends that vaccines offer 50% protection against cervical cancer, 27% believes the protection level is at 70%, 49% states it reaches 90% protection, and the remaining 23% asserts that vaccines provide complete, 100% protection against cervical cancer.

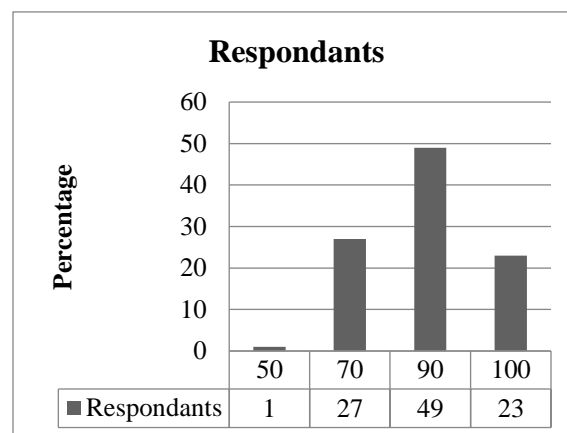


Figure 4: Cervical Cancer Protection Afforded by HPV Vaccine

Among the respondents (Figure 5), 39% offered replies indicating a lack of adequate information, 18% raised concerns about elevated costs, 29% mentioned apprehensions about potential complications, and 14% expressed worries regarding vaccine efficacy.



Figure 5: Perceived obstacles to receiving/advising HPV vaccination

In the current investigation, 59% credited their understanding to medical school instruction, with 21% depending on insights gained from friends. Furthermore, 25% acquired information from books, while 29% sought knowledge from online sources.

DISCUSSION

The study, encompassing a sample of 384 participants, provides valuable insights into the perceptions, beliefs, and attitudes surrounding cervical cancer, HPV vaccination, and related factors. The primary objective of the present study was to assess the knowledge and awareness of HPV among university students. Overall, the results suggested that the participants exhibited limited understanding of HPV, with only a small number of exceptions. Improving awareness regarding diseases linked to HPV is beneficial for both students and healthcare professionals, offering advantages to society as a whole. Generally, the students displayed a moderate level of knowledge concerning HPV infection and vaccination. Similar observations have been reported in other research studies, where students commonly showed varying levels of knowledge, often ranging from low to moderate, on the topic.⁹⁻¹³ The participants' demographics, including age and gender distribution, were carefully examined, contributing to a comprehensive understanding of the study cohort.

One notable finding pertains to the participants' beliefs regarding the preventability of cervical cancers. A significant portion, 21%, of the medical students aged 18 to 24 years, expressed certainty that cervical cancer is preventable. This underscores the importance of health education interventions to enhance awareness and correct misconceptions among this demographic group. Earlier research publications propose that achieving extensive coverage of both HPV vaccination and cervical cancer screening holds the potential to prevent approximately 13 million cases of cervical cancer globally by the year 2069.^{14,15} The data regarding participants' beliefs about the causes of cervical cancer further illuminate the need for targeted educational campaigns. While the majority attributed cervical cancer to a virus, a noteworthy 17% associated it with bacteria, and 4% with fungi. These findings emphasize the necessity for disseminating accurate information about the etiology of cervical cancer to dispel misconceptions.

Exploring the participants' perspectives on HPV vaccination revealed diverse opinions on the age

eligibility and suitability for both genders. The data indicates that a considerable number of participants believe in administering the HPV vaccine to individuals within the 10-30 year age group, with varying views on eligibility for boys. This highlights the importance of understanding public opinion when formulating vaccination strategies. Furthermore, the study sheds light on participants' awareness and attitudes regarding the HPV vaccine's availability in India. While the majority believe the vaccine is available, a significant portion remains uncertain. This underscores the need for clear and accessible information regarding vaccine accessibility, aiming to bridge knowledge gaps and improve vaccination uptake.

In the discussion, it is noteworthy that a significant portion of the surveyed individuals expressed concerns and considerations related to HPV vaccination. Specifically, 39% of the respondents indicated a lack of adequate information, highlighting a potential gap in knowledge dissemination. Additionally, 18% raised concerns about the elevated costs associated with the vaccine, emphasizing a financial barrier that could impact vaccination uptake. The apprehensions about potential complications, voiced by 29% of the participants, underscore the importance of addressing safety-related concerns in public health communication. Furthermore, 14% expressed worries regarding vaccine efficacy, signaling the need for clear and transparent information to build confidence in the vaccine's effectiveness.

The study also revealed insights into the sources of knowledge among the participants. A substantial majority, 59%, attributed their understanding to medical school instruction, emphasizing the pivotal role of formal education in shaping perceptions and awareness. It is noteworthy that 21% relied on information acquired from friends, suggesting the influence of peer networks in disseminating information. Additionally, 25% obtained information from books, highlighting the significance of traditional sources in knowledge acquisition. The reliance on online sources by 29% of participants emphasizes the evolving landscape of information-seeking behavior, necessitating attention to digital

platforms in health education initiatives as seen in other studies.^{16,17} These findings collectively underscore the multifaceted nature of knowledge acquisition and the diverse channels through which individuals form their perceptions about HPV vaccination.

The participants' varied opinions on HPV vaccination safety, cervical cancer screening, and the perceived effectiveness of the vaccine also provide rich insights. The data emphasizes the importance of tailoring public health campaigns to address specific concerns and misinformation, promoting informed decision-making.

CONCLUSIONS

In conclusion, the study offers a comprehensive overview of the beliefs and perceptions surrounding cervical cancer and HPV vaccination among the surveyed participants. The findings underscore the necessity for targeted educational interventions and awareness campaigns to enhance knowledge, correct misconceptions, and ultimately improve public health outcomes in the context of cervical cancer prevention and HPV vaccination.

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